REMARKS/ARGUMENTS

Claims 1 and 3-6 are now active in this application, claims 2 and 7-8 having been cancelled by the present amendment. Claim 1 has been amended to specify that the monoglyceride is stearic acid monoglyceride. Also, claim 1 has been amended to specify that the range of water content in the resin is from 0.05 to 0.2 mass % and that the resin is cooled by use of water having an electric conductivity of 1 μS/cm or less. These amendments are supported by original claims 7, 8 and 2 respectively. Claims 4-6 have been amended to correct the dependencies in accordance with the cancellation of original claim 2. No new matter has been added by these amendments.

The present invention relates to a polycarbonate resin composition that is produced by combining 0.015 to 0.05 parts of stearic acid monoglyceride with 100 parts of an aromatic polycarbonate resin, then adding water having an electric conductivity at 25C of 1 μS/cm or less to the resin such that the final water content of the resin is controlled to fall within the range of 0.05 to 0.2 mass% (i.e. 500-2000 ppm). The water added resin is then melt extruded, cooled and cut to form pellets. The resin has a viscosity average molecular weight of 10,000 to 20,000. Additionally, the present invention requires that the melt-extruded resin be cooled by use of water having an electric conductivity at 25C of 1 μS/cm or less. Applicants have found that by using the required amount of stearic acid monoglyceride, and controlling the amount of amount of low conductivity water present in the final product to the specified range, and using the same type low conductivity water for cooling the melt extruded resin, the resulting composition, when used to make an optical disk, results in an optical disk having better long term storage of data, a wider range of molding conditions can be used, the molding cycle and productivity are enhanced, and the degradation of the stearic acid monoglyceride as a release agent is decreased.

The claims stand rejected under 35 U.S.C. 103 over JP 2000-001608, or US 6,316,071 in view of 5,717,055. None of the cited references disclose or suggest the particular combination of requirements of the present claim as amended. In particular, JP '608 discloses polycarbonate compositions, which may contain 100-600 ppm of a release agent, which can be a fatty acid ester of a polyhydric alcohol, such as stearic acid monoglyceride. However, there is nothing within this reference regarding the addition of water to the composition, nor that the water must have a particular electric conductivity range of 1 μS/cm or less, as required by the present invention. Additionally, there is nothing within the reference to suggest that on cooling the resin, one must use a low conductivity water for the cooling step, as now required by claim 1. Applicants have found that by combining the particular requirements of the present claim 1, namely the specified amount of stearic acid monoglyceride, along with the specified amount of **low conductivity water** in the final resin composition, and using **low conductivity water** to cool the resin composition on extrusion, one obtains significantly improved results in the final product optical disk. The results shown in the Tables of the present application bear this out. In particular, Table 2 shows that upon using water having a conductivity more than 1 μS/cm in the composition, the substrate generated from the composition is significantly more riddled with defects. Further, Tables 1-1 and 1-2 show that if the amount of low conductivity water in the final composition is not within the stated range, the molding ability (particularly the releasability) of the composition is degraded to an unacceptable level. (see Table 1-2, Comp. Exs. 1-3). Since JP '608 nowhere suggests the particular combination of requirements in claim 1 as amended, this reference cannot render the present invention obvious.

Further, US 6,416,071 likewise makes no mention of using low conductivity water in the composition described, nor of the importance of the amount of such low conductivity water, nor the requirement that the composition be cooled using low conductivity water.

The US '055 reference discloses that it is preferred to use pure water having a conductivity no higher than 5 μS/cm, preferably no higher than 1 μS/cm in their invention. However, while the reference suggests improvements in vapor resistance and heat resistance due to the use of such pure water, there is no suggestion that use of such low conductivity water in a polycarbonate composition would provide significant improvements in defect rate in the production of an optical disk substrate. Vapor resistance and heat resistance do not readily correlate with defect rate in a substrate. Rather, the defect rate bears more relation to the performance of the substrate in long-term storage of data, as noted in the present application.

Accordingly, even if the Examiner were to maintain that the present invention as claimed is still obvious in view of the combination of the cited references, the data in the Tables of the specification are sufficient to show significant improvements in level of defects in the optical disk substrate, relative to the conductivity of the water, and in releasability of the resin composition based on low conductivity water content. Neither of these advantages are anywhere suggested by the references, either alone or in combination, and as such, the data amply rebut any asserted case of obviousness by the Examiner. Accordingly, the rejection should be withdrawn.

Applicants submit that the application is now in condition for allowance and early notification of such action is earnestly solicited.

Respectfully submitted,

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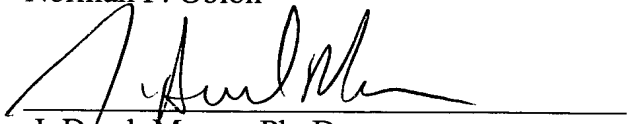

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